3.500 New Madrid - HW
Noranda Aluminum, Inc.

STATE OF MISSOURI
Mel Carnahan, Governor • David A. Shorr, Director
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
Southeast Regional Office
P.O. Box 1420 948 Lester Street Poplar Bluff, MO 63901-1420
(314)840-9750
FAX (314)840-9754

October 2, 1995

CERTIFIED MAIL: Z 148 565 441
RETURN RECEIPT REQUESTED

L.O.W. SE-95-008

Mr. David Hart
Environmental/Energy Manager
Noranda Aluminum Inc.
P.O. Box 70
New Madrid, MO 63869

Dear Mr. Hart:

Enclosed is a report on inspection of the Noranda Aluminum Inc., Products facility conducted on September 19, 1995. This inspection was made to determine if Noranda Aluminum Inc., was in compliance with the environmental laws of the State of Missouri, and rules of the Department of Natural Resources, and the United States Environmental Protection Agency pertaining to hazardous waste management. The contents of this report are believed to be self-explanatory. If, however, you have any questions concerning any part of the report, please call James A. Burris at the Southeast Regional Office, (314) 840-9750.

During this inspection, violations of Missouri's Hazardous Waste Management Law and Regulations were found. It is our purpose by the report to notify you of these apparent violations and to persuade you to take steps to eliminate these violations as rapidly as possible.

The Department of Natural Resources strongly urges that the unsatisfactory features listed in this report be given your immediate attention. Noranda Aluminum Inc., is requested to address each unsatisfactory feature, implementing the necessary corrective action to return your facility to compliance. Your facility should submit copies of documentation outlining all corrective measures that have been taken to eliminate the violations to the Department of Natural Resources, Hazardous Waste Program, Attn: Tom Judge, Acting Chief, Hazardous Waste Enforcement Unit, P. O. Box 176, Jefferson City, MO 65102 and to the Department of Natural Resources, Regional Director, Southeast Regional Office, P. O. Box 1420, Poplar Bluff, MO 63902.

Compliance should be completed within thirty (30) days of the receipt of this report and documentation of compliance should be mailed to each above mentioned office within thirty (30) days of the receipt of this report.

A follow-up investigation may be conducted by staff of the Department of Natural Resources to determine if corrective measures have been successful in achieving compliance.

Sincerely,

Gary L. Gaines, P.E.
Regional Director

GLG:jbs

Enclosures

c: Tom Judge, Acting Chief, Enforcement Unit, HWMP

RESOURCE CONSERVATION AND RECOVERY ACT
AND
MISSOURI HAZARDOUS WASTE MANAGEMENT LAW
COMPLIANCE EVALUATION INSPECTION REPORT
September 25, 1995

FACILITY

Noranda Aluminum Inc.
P.O. Box 70
New Madrid, MO 63869
(314) 643-2361

EPA ID: MOD093750968
MO Generator ID: 001562

PARTICIPANTS

Department of Natural Resources	Mr. James A. Burris Environmental Engineer Southeast Regional Office
Noranda Aluminum Inc.	Mr. Dave Hart Env./Energy Manager
	Mr. Don Backfish Env./Energy
	Mr. Frank Saul Safety & Security Dir.

INTRODUCTION

On September 19, 1995, James A. Burris, representing the Missouri Department of Natural Resources, Southeast Regional Office, conducted an inspection of the Noranda Aluminum Products Inc., facility located in New Madrid County, Missouri. The inspection was conducted to determine compliance of the facility with the Resource Conservation and Recovery Act, the Missouri Hazardous Waste Management Law, and applicable state and federal regulations promulgated thereunder. Authority to conduct such inspections has been granted under Section 260.375(9) and 260.377 RSMo.

Appropriate credentials were presented, and an explanation given as to the purpose of and authority to conduct the inspection. The inspection consisted of an opening conference, records review, a visual facility inspection, and a closing conference. The facility representatives were informed of the right to confidentiality.

FACILITY DESCRIPTION

Noranda Aluminum is a manufacturer of primary aluminum metal. Noranda Aluminum Inc., (Noranda) is a U.S. entity in the

international group of companies headed by Noranda Incorporated of Toronto Canada. The corporate headquarter offices of Noranda are located at One Brentwood Commons Suite 175, Old Hickory Blvd., Brentwood, Tennessee. The facility is located adjacent to the Mississippi River approximately five (5) miles south of New Madrid, Missouri in the St. Jude Industrial Park.

Noranda's first aluminum metal was produced by the reduction plant in February of 1971. Prior to February 1971, The Rod Mill was supplied with purchased aluminum metal with initial production in late 1969. The reduction plant was brought on line with two (2) additional phases, with phase two completed in 1976 and phase three in July of 1983. Noranda's New Madrid facility has a design capacity of 225,000 tons of metal per year.

Some of the metal produced is processed on-site at the Rod Mill where the metal is converted to metal rod used in electrical conductor products. Remaining aluminum is sold to customers in the form of extrusion billet, sheet ingot or casting ingot.

A large percentage of aluminum metal is sold to corporate owned facilities such as Norandex Inc., located in Cleveland, Ohio for fabrication into aluminum building products. A percentage of aluminum is transported to a sheet and foil plant in Huntingdon, Tennessee and to a rolling mill in Scottsboro, Alabama owned by Noranda. Finished products are sold worldwide. Major transportation is by truck and rail, and for overseas customers, by sea vessels.

Approximately 1,200 people work on three (3) shifts: 8:00 a.m. to 4:00 p.m., 4:00 p.m. to 12:00 p.m., 12:00 p.m. to 08:00 a.m.; seven (7) days per week.

Primary aluminum metal production consists of three stages, mining bauxite deposits containing aluminum compounds, refining dried bauxite for alumina recovery and conversion of alumina into aluminum metal. Noranda performs the third and final stage of these processes. Alumina is received by barge from alumina refineries as is calcined petroleum coke, a primary material for metal production. Unloading is accomplished by a vacuum process. Materials are then placed on conveyors for transport to large storage tanks. Cryolite (solid aluminum fluoride) and various other materials are received by railroad.

Process operations include mixing alumina, cryolite, and aluminum fluoride in steel cells which have the bottom lined with carbon. Carbon electrodes are placed into this mixture and a direct electrical current is applied. Current is carried by the molten mixture to carbon cathodes lining the cells. Oxygen and the carbon join in the anode forming carbon dioxide which frees the aluminum. Molten layers of aluminum form above the carbon lining the bottom of the cells and below the layer of undissolved alumina.

The molten aluminum is removed daily from the cells and collected in large crucibles to be used in the Rod Mill or Reduction Metal Services Department (RMSD). At the RMSD, the molten metal is introduced into charging furnaces (80,000 pounds capacity) to be cast into rolling ingots, extrusion billets and casting ingots. Metal received at the Rod Mill is introduced into a charging furnace, where the molten metal is passed through a continuous casting and rolling process converting the metal into 3/8 inch diameter rod, in coils weighing 4,000 pounds each.

As previously mentioned, the production of the aluminum requires the use of carbon anodes. These carbon anodes are manufactured from the calcined petroleum coke and coal tar pitch. Noranda manufactures its own carbon anodes in the facility's Carbon Operations Green Carbon Area. The calcined petroleum coke is crushed, mixed with coal tar pitch, then heated to approximately 150° C. The mixture is then pressed into two (2) different size and weight carbon anode blocks. The blocks are formed 21 1/2 by 32 1/2 by 20 1/2 inches weighing 771 pounds, or 28 by 28 by 20 1/2 inches weighing 886 pounds. Two (2) potrooms require the 771 pound anodes and one (1) potroom requires 886 pound anodes.

After forming, the blocks are baked at a temperature of 1150° C, allowed to cool, and then removed from the baking furnaces. The anodes are then cleaned and sent to the carbon rodding area where two (2) blocks of equal size are secured to an aluminum rod assembly where they are coated with a layer of molten aluminum. The assembly is sent to the potroom for use in the reduction cells which are called pots. The anodes life is about eighteen (18) days. Upon removal, the blocks are returned to the Green Carbon Area for recycle of carbon. Over 100,000 tons of anodes are consumed per year.

As the name implies, the reduction cell (POT) entails an electrolytic reduction process where the steel cell lined with carbon acts as the cathode. The cell top supports the anode buss and the carbon anode assemblies. All pots are housed in six (6) buildings. A total of 508 pots are housed at the facility. From the total number of pots, 348 produce approximately 2,400 pounds of molten aluminum each in a 24 hour period. The remaining 160 pots produce 3,000 pounds of molten aluminum in a 24 hour period. The 348 pots produce 140,000 tons per year of aluminum, where as the other 160 pots produce 85,000 tons of aluminum per year.

When the molten metal is to be removed from a pot, air is used to draw a vacuum to siphon the metal into a crucible. Crucibles containing aluminum metal are then transported to the Rod Mill or Metal Services Department for further processing.

Process operations in the Metal Services Department entails casting the molten aluminum into a solid saleable form. The 80,000 pounds capacity melting furnaces allow for the metal to be alloyed and processed to meet customer requirements. After

removal from the melting furnaces, the metal is introduced into a holding furnace where it is further processed and held at proper casting temperature.

Two (2) types of casting, direct chill and pig casting, are utilized. The rolling ingot and extrusion billet are cast by the direct chill process where hot metal is poured into a mold from the holding furnace. The mold has a moveable bottom with a hydraulic piston support. The metal solidifies in the bottom as the mold lowers into a pit. Continuous cooling of the mold and outer ingot or billet surface is accomplished by the introduction of water during the casting. Ingots are formed in a rectangular mold and extrusion billet is formed in a circular mold. Casts up to 60,000 pounds can be formed.

Pig casting utilizes molds of fixed capacity. Normally molds of 30 pounds are called "pigs". They are cast on a continuous conveyor, which automatically cools, identifies, ejects, and bundles the pig for shipment. Molds of 1,200 pounds and greater are called "sows". Sow, pig, billet, rolling ingot, and "T" ingot produced by Noranda are shipped to other facilities for manufacture of numerous aluminum products.

The operations at the Rod Mill include molten aluminum being placed in a large furnace to be alloyed, processed, and stabilized in temperature. The metal is then cast into continuous casting and rolling equipment which forms the liquid metal into continuous coils of 3/8 inch diameter rod. The rod is shipped off-site for further use.

Dross, chips, and "trash metal" from process operations are transported to Marnor Aluminum located at Sikeston, Missouri for further reclamation of aluminum.

The major hazardous waste stream generated at Noranda is spent potliner. This is the waste material removed from the pot during cleaning, after use. The waste is classified as RQ Hazardous Waste, solid NOS ORM-E NA 9189 (K088). The waste is transported off-site by U.S. Pollution Control Inc., (H-1024) (TXD988052494) by truck to Union Pacific Railroad (R-1536) (NED001792910), then by U.S. Pollution Control Inc., to U.S. Pollution Control Inc., (Lone Mountain Facility) (OKDO65438376) located five (5) miles east and one (1) mile North of U.S. Hwy 281 and Hwy 412 Jct, Waynoka, OK . For the first quarter of 1995, 2,775,270 pounds of (K088)(spent potliner) were manifested off-site .

Laboratory waste classified as F001-F005, D001 Waste Flammable Liquid N.O.S. 1993, is generated as a result of analytical procedures. The generation rate for this waste varies, and when generated it is stored in 55 gallon drums and stored in the hazardous waste storage building.

Noranda intermittently generated wastes classified as RQ Hazardous Waste, Liquid, N.O.S., ORM-E, NA 9189, D008, RQ Waste Paint Related Material, D001, D007, D008, Class 3, UN 1263 RG III and RQ Hazardous Waste Solid, N.O.S., ORM-E, NA9189, F002. All three (3) waste streams were removed by Safety-Kleen Corporation.

In addition, Safety-Kleen parts washers are the points of generation for waste classified as Waste Petroleum Naptha, Combustible Liquid, NA1993 (NOT USEPA HAZARDOUS WASTE) generated at an approximate rate of 946 gallons per quarter. Safety-Kleen removes this waste for recycle to its Cape Girardeau facility.

UNSATISFACTORY FEATURES

The following unsatisfactory features list the regulatory or statutory provisions which Noranda Aluminum Inc., was in violation at the time of the inspection. All 40 CFR (Code of Federal Regulations) citations have been adopted by the Missouri Hazardous Waste Management Law and Regulations.

1. Failure to clearly mark containers "hazardous waste". 10 CSR 25-5.262(1) incorporating 40 CFR 262.34(a)(3)

   Waste "K088" was being stored without labels indicating that the waste was hazardous.

2. Failure to mark containers with accumulation date. 10 CSR 25-5.262(1) incorporating 40 CFR 262.34(a)(2).

   Waste "K088" was being stored without a start date of accumulation.

3. The contingency plan failed to list the names, addresses, and telephone numbers (Home and Office) of all emergency coordinators. 10 CSR 25-5.262(1) incorporating 40 CFR 262.34(a)(4) referencing 40 CFR 265.52(d)

4. Failure to include within the facility evacuation plan the evacuation signal to be used to begin evacuation. 10 CSR 25-5.262(1) incorporating 40 CFR 262.34(a)(4) referencing 40 CFR 265.52(f)

SUBMITTED BY:

James A. Burris, P.E.
Environmental Engineer III

APPROVED BY:

Gary L. Gaines, P.E.
Regional Director